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Mr. Waterhouse then proceeded to point out certain differences observable in the skulls of two species of Squirrels, which are usually confounded under the name *Sciurus Palmarum*, and the external characters of which he had pointed out in the "Magazine of Natural History" for September 1837, p. 496. The specific name *tristriatus* is there proposed for the new species.

"The skull of *Sciurus tristriatus*," observes Mr. Waterhouse, "differs from that of *Sc. Palmarum* in being a little larger, considerably broader in proportion, and in having the upper surface less convex; the post-orbital process is larger, the width between the orbits is greater, and the nasal portion is more suddenly contracted; the nasal bones are larger, and narrower posteriorly. Following are the dimensions of the crania of these two species of Squirrel."

	Sc. Palmarum.		*Sc. tristriatus.*	
	unc.	lin.	unc.	lin.
Total length	1	6	1	7½
Width		10½		11½
—— between orbits		5⅓		6⅓
Length of nasal bones		5½		6
From outer side of incisors (upper jaw) to front molar tooth		5		5¾
Space occupied by the five molars on either side of upper jaw		3½		4¼
Length of palate		7¾		9
—— of ramus of lower jaw from front to posterior part of condyle		10½	1	0½

MICROSCOPICAL SOCIETY.

The Microscopical Society of London, held their first Meeting on Wednesday, January 29th, at the Horticultural Society's Rooms, No. 21, Regent Street. The meeting was attended by upwards of a hundred members and visitors.

The President Professor Owen, announced that since the provisional meeting on the 20th of December, for the purpose of forming the Society, the number of members had increased to one hundred and ten, and a further addition of twenty-nine names was announced in the course of the evening, making a total of one hundred and

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thirty-nine original members of the Society, it having been determined that those who joined the Society on or before the first night of meeting should be considered original members.

Mr. Owen communicated a paper on the application of Microscopic examinations of the structure of teeth to the determination of fossil remains. After alluding to the essential service rendered by the microscope to the chemist, mineralogist, and vegetable physiologist, he proceeded to offer a few examples of the utility of the microscope to the geologist, when applied to the investigation of the structure of fossilized teeth.

The first example adduced was that of the Saurocephalus, an American fossil animal which had been referred to the class of reptiles. After pointing out the destructive characters of the microscopic texture of the teeth in reptiles and fishes, it was shown that the Saurocephalus, according to this test, unquestionably belonged to the latter class, and that it most closely resembled Sphyræna among recent fishes in its dental structure.

The second instance was the Basilosaurus of Dr. Harlan, which had been referred to the class Reptilia; and the double-fanged structure of its teeth, had, on the strength of its supposed Saurian affinities, been adduced to weaken the arguments advanced in favour of the mammiferous nature of certain fossils from the Stonesfield oolite. Mr. Owen, after describing the microscopic character of the teeth of the Basilosaurus, showed that it deviated from the Saurian structure in this respect as widely as the Saurocephalus, but that the modification of its dental structure resembled most closely that of the cachalot and herbivorous Cetacea. Lastly, Mr. Owen alluded to the difference in the views entertained by Cuvier and M. de Blainville, as to the affinities of the megatherium, which was referred by the one to the family of the Sloths, and by the other to that of the Armadillos: after explaining the well-marked differences in the microscopic characters of the dental structure in these two families of the so-called Edentata, Mr. Owen proceeded to describe the structure of the teeth of the megatherium, and to show that in its close resemblance to the dental structure of the sloths, it confirmed the views of the great founder of the science of fossil remains. This paper was accompanied by a number of very beautiful illustrative drawings, exhibiting the minute structure of the teeth of the animals referred to.

Mr. Jackson then read a short paper drawing the attention of the Society to a mode of mounting the compound microscope, which differs in some particulars from the methods generally adopted. The principal object to be kept in view in the construction of the

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instrument, is the prevention of those accidental vibrations which so much interfere with microscopic examinations, especially in the neighbourhood of crowded thoroughfares. This object is effected by connecting together the body and stage of the instrument in such a manner, that whatever vibrations are communicated to the one shall be equally communicated to the other. In the instrument of Mr. Jackson this principle has been carried further than has hitherto been effected; and it also affords improved facilities for minute adjustments, and the accurate admeasurement of microscopic objects.

A discussion ensued on the subject of Mr. Jackson's paper, and also on the best methods of measuring microscopic objects, and the greater difficulties encountered in ascertaining the antero-posterior diameters of minute bodies, as compared with the facilities which we possess of obtaining lateral measurements. The meeting then resolved itself into a conversazione, during which a number of interesting objects were exhibited by individual members, many of whom had their microscopes upon the table.

The meeting adjourned at 11 o'clock.

Wednesday, February 19, 1840, R. H. Solly, Esq. in the Chair.

A paper was read by Mr. Quekett, on the development of the vascular tissue of plants, in which it was shown that the membranous tube of vessels originated from a cytoblast in a manner similar to that described by Schleiden in the formation of cells*, from which at first it is difficult to recognise them; but in a short time they assume a very elongated form, and the cytoblast disappears. Before the fibre is deposited, the contents, which are gelatinous, are crowded with numerous most minute granules, which possess the motion known as "active molecules," and after a short time when they have become a little enlarged, they adhere to the inner surface of the tube containing them in a different manner for each vessel, so that the several varieties of vascular tissue are not degenerations of each other, but are each constructed originally on the plan they are always observed to present to the eye.

It had been conjectured by Schleiden that a current existed between the gelatinous contents of the cell and its walls, which preceded the formation of a fibre and gave the direction it afterwards took; this was refuted by showing that the granules become separately attached to the inside of the vessel, a little distance from each other, beginning first at one end and proceeding to the opposite; the fibre elongating like a root, by the materials of growth being

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This act is the one observed in the formation of the fibre of all vessels, but the arrangement of the granules differs so as to constitute the several varieties. In the annular vessel the granules attach themselves horizontally, forming rings. In the spiral they become inclined, and by continuing this direction around the interior of the membranous tube, the peculiar character of the vessel is obtained. In the reticulated, each division or branch of the fibre or granule becomes enlarged in the line, and forms the starting-place for the fresh direction of the fibre. In the dotted and scalariform vessels, the fibres become so reticulated as to have portions of the outer membrane of the vessel without any deposit within; and this spot, so left, constitutes the dot or linear marking seen in these vessels.

This dot is plain in all such vessels, excepting those found in woody exogens, where it possesses (from a slight difference in structure) a central mark analogous to that on the woody tissue of coniferous plants with which Mr. Quekett considers it identical, but only of a smaller size. The paper was illustrated with numerous diagrams, which gave representations of the successive stages of the minute process Mr. Quekett had observed.

ROYAL IRISH ACADEMY.

November 11, 1839.—Mr. Ball read a paper "on the *Bolina Hibernica,*" by Robert Patterson, Esq., Member of the Natural History Society of Belfast.

In a note appended to his paper on the *Cydippe Pomiformis,* (Trans. R. I. A., vol. xix., part 1, page 96,) the author had mentioned the occurrence on the Irish coast of a species of ciliograde, which he had named provisionally *Bolina Hibernica.* A large number having been taken in the bay of Bangor, county of Down, on the 11th of July, 1839, the drawings now brought forward were executed from living specimens.

The movement of this Beroë was stated to be less vivacious than that of the *Cydippe Pomiformis,* and it is much more susceptible of external injury. The long-continued action of certain portions of the cilia, after the animal was broken to pieces, was mentioned; the variety of aspect presented by the tentacula described; and the situation of certain whitish cords or vessels minutely detailed. The lobes of the mouth were shown by the figures not to occupy more

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